

# Basic Erosion and Sediment Control Course

Participant Guide



Training provided by the Virginia Department of Environmental Quality  
Office of Training Services

Winter 2013/2014

## Agenda

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### Day 1

8:30 – 9:15	Module 1 – Introduction and Course Overview
9:15 – 9:45	Module 2 – Why Erosion and Sediment Control Matters
9:45 – 10:00	Break
10:00 – 12:00	Module 2 – Continued
12:00 – 1:00	Lunch
1:00 – 2:15	Module 3 – The Virginia Erosion and Sediment Control Law
2:15 – 2:30	Break
2:30 – 4:00	Module 4 – The Virginia Erosion and Sediment Control Regulations

### Day 2

8:30 – 9:00	Module 5 – Overview of a VESCP
9:00 – 10:00	Module 6 – The Erosion and Sediment Control Planning Process
10:00 – 10:15	Break
10:15 – 12:00	Module 6 – Continued
12:00 – 1:00	Lunch
1:00 – 2:00	Module 6 – Continued
2:00 – 2:15	Break
2:15 – 3:30	Module 7 – The Plan Review Process

## Table of Contents

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### DAY 1

#### Module 1: Course overview

1a: Introduction .....	
1b: Training and Certification .....	
1c: Technical Assistance.....	

#### Module 2: What is ESC and why does it Matter?

2a: Introduction .....	
2b: Erosion Defined .....	
2c: Sources of Sediment .....	
2d: Five Stages of Water Erosion.....	
2e: Four Factors Influencing Erodibility.....	
2f: Main Principles of Erosion and Sediment Control.....	
2g: Environmental Impacts of Erosion and Sedimentation.....	
2h: Sediment in Stormwater (a Summary) .....	

#### Module 3: Federal and State Laws that Pertaining to Erosion and Sediment Control

3a: Brief history of the Erosion and Sediment Control Law .....	
3b: Virginia ESC Law - Overview .....	
3c: Virginia Stormwater management Act - Overview .....	
3b: Virginia Chesapeake Bay Preservation Act - Overview .....	

#### Module 4: Virginia Erosion & Sediment Control Program (VESCP) Regulations

4a: Introduction .....	
4b: The Regulations (Purpose and Scope) .....	
4c: Introduction to the Minimum Standards .....	
4d: Minimum Standards: 1-18 .....	
4e: Stormwater Management .....	
4f: Minimum Standard 19 (MS-19) .....	
4g: Variances .....	
4h: Maintenance and Inspections .....	

#### Module 5: Overview of a VSMP

5a: VESCP Process .....	
5b: Managing a VESCP .....	

## **Course Goal**

Provide participants with the knowledge and tools needed to successfully meet the regulatory requirements of the ESC Act and Regulations to ensure the general health, safety and welfare of the citizens of Virginia, as well as provide protection for state waters.

## **Participant expectations**

- Use the training materials as you like. All the materials that you received were prepared for your use, and you may use the handouts for note taking during the training.
- Be honest with yourself about your strengths and areas that you need to develop. You are responsible for your own learning. Ask for what you need from your trainers and other group members.

## Acronyms

**BMP:** Best Management Practice

**CA:** Composted amended soils

**CBPA:** Chesapeake Bay Preservation Area

**CDA:** Contributing drainage area

**CFS:** Cubic Feet per Second

**CN:** Curve number

**CPv:** Channel Protection Volume

**CSN:** Chesapeake Stormwater Network

**CSO:** Combined Sewer Overflow

**CWA:** Clean Water Act

**CWP:** Center for Watershed Protection

**DEQ:** Virginia Department of Environmental Quality

**ED:** Extended detention

**EMC:** Event Mean Concentration

**EPA:** United States Environmental Protection Agency

**ESC:** Erosion and Sediment Control

**ESCL:** Erosion and Sediment Control Law

**ESD:** Environmental Site Design

**g/cc:** Grams (weight) per Milliliter (volume)

**GP or Construction GP:** Construction General Permit

**HSG:** Hydrologic Soil Groups

**HUC:** Hydrologic Unit Code

**I-D-F curves:** Intensity-Duration-Frequency curves

**LDA:** Land Disturbing Activity

**LID:** Low Impact Development

**MS4:** Municipal Separate Stormwater Sewer System

**NHRCS TR-55:** Natural Resources Conservation Service Technical Release 55

**NOAA:** National Oceanic and Atmospheric Administration

**NPDES:** National Pollution Discharge Elimination System

**NPS:** Non-Point Source

**P:** Phosphorus

**P2 Plan:** Pollution Prevention Plan

**RR:** Runoff Reduction

**RRM:** Runoff Reduction Method

**SAV:** Submerged Aquatic Vegetation

**SWM:** Stormwater Management

**SWPPP:** Stormwater Pollution Prevention Plan

**Tc or TOC:** Time of concentration

**TMDL:** Total Maximum Daily Load (a federal and state regulatory term which describes the maximum pollutant amount a body of water can receive while still meeting water quality standards)

**Tv:** Treatment Volume

**VESCP:** Virginia Erosion and Sediment Control Program

**VRRM:** Virginia Runoff Reduction Method

**VSMA:** Virginia Stormwater Management Act

**VSMP:** Virginia Stormwater Management Program

**VPDES:** Virginia Pollution Discharge Elimination System

## Module 1: Course Overview

### Module 1 Objectives

After completing this module, you will be able to:

- Identify the training and certification requirements for erosion and sediment control and stormwater management

### Module 1 Content

1a. Introduction

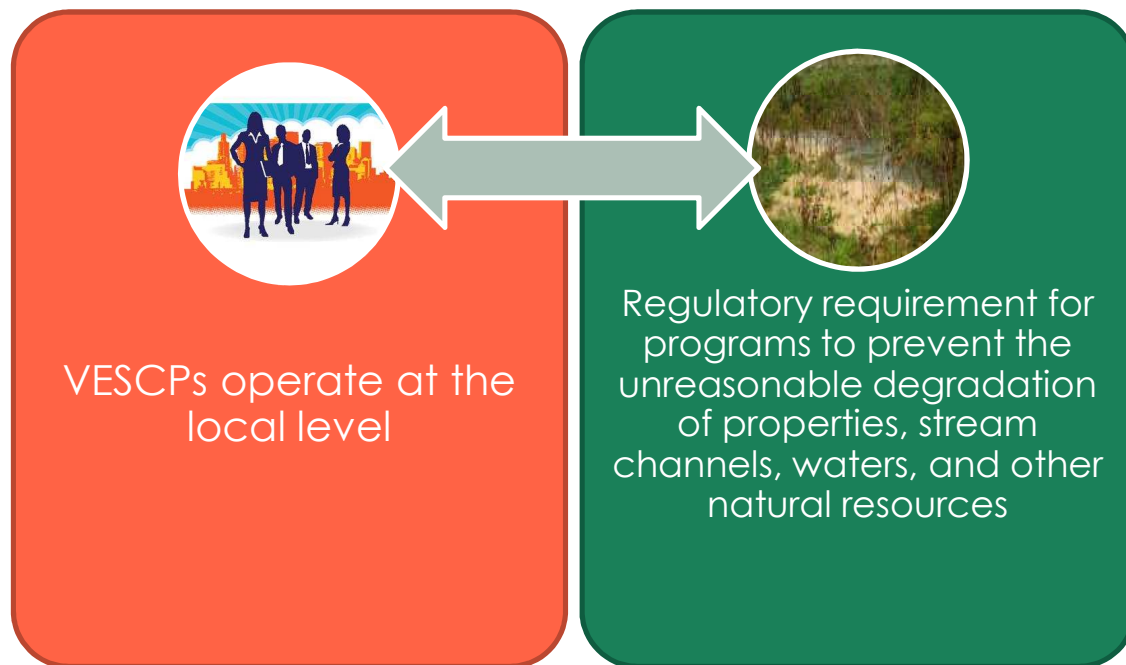
1b. Training and Certification

1c. Technical Assistance / 1992 Erosion and Sediment Control Handbook

1d. Roles and Responsibilities in a VESCP Authority

## 1a. Introduction

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The Virginia Erosion and Sediment Control Law (ESCL) (§ 62.1-44.15:52) requires that the State Water Control Board “... *shall develop a program and promulgate regulations for the effective control of soil erosion, sediment deposition, and nonagricultural runoff that must be met in any control program to prevent the unreasonable degradation of properties, stream channels, waters and other natural resources ...*”

Moreover, in § 62.1-44.15:52 the law requires the establishment of “Local Erosion and Sediment Control programs.” Section § 62.1-44.15:53 requires that a local program “... *shall provide that within one year following the adoption of amendments to the local program adding the provisions of this section, (i) a conservation plan shall not be approved until it is reviewed by a certified plan reviewer; (ii) inspections of land-disturbing activities are conducted by a certified inspector; and (iii) a local program shall contain a certified program administrator, a certified plan reviewer, and a certified project inspector, who may be the same person.*”

In summary, these two paragraphs detail the need for localities to establish a Virginia Erosion and Sediment Control Program (VESCP) and establish the requirement that the



Department of Environmental Quality (DEQ) provide assistance; develop regulations and a training and certification program. These regulations made effective March 22, 1995 require Board-approved training and certification for individuals who:

- Administer a local program (“program administrators”),
- Inspect regulated land-disturbing projects (“inspectors”), or
- Review ESC plans (“plan reviewers”),

The Erosion and Sediment Control and Stormwater Management Certification Regulations ([9VAC25-850](#)) provided for the fourth track of Combined Administrator, or “*anyone who is responsible for performing the combined duties of a program administrator, plan reviewer and project inspector of a VESCP authority.*”

House Bill 1065, also called the Integration Bill of 2012 made some significant changes to the ESCL and the Virginia Stormwater Management Act (VSMA). Among the changes is the requirement to align the ESCL with the SWMA. In addition, House Bill 1065 required that all counties, cities, and towns with regulated Municipal Separate Storm Sewer System (MS4) programs adopt and administer a local Virginia Stormwater Management Program (VSMP) – effectively creating a statewide stormwater management program that operates at the local level, much like what has been the case for Erosion and Sediment Control.

The movement of the VSMP from the state level to the local level allows localities to integrate their stormwater management requirements with the requirements of erosion and sediment control, flood insurance (if applicable), flood plain management, and Chesapeake Bay Preservation Act (if applicable) into a unified stormwater program. This is intended to make the submission and approval of plans, issuance of permits, payment of fees, and coordination of inspection and enforcement activities more convenient and efficient for both the locality and the applicant.

The VSMA and Regulations also bring about a new shift to the runoff reduction paradigm where designers will focus on reducing the post-development stormwater runoff volume from a site, as well as meeting more stringent nutrient load reduction requirements to improve water quality. The ESCL and Regulations mostly address soil erosion and sediment deposition during construction.

## 1b. Training and Certification (9VAC25-850)

The ESCL requires personnel working in a VESCP to obtain and maintain a certificate of competence in the area of stormwater management. These requirements are further spelled out in the Erosion and Sediment Control and Stormwater Management Certification Regulations (9VAC25-850) which require that individuals who perform certain duties in a VESCP and/or a Virginia Stormwater Management Program (VSMP) to be certified.

While the ESC certification has been in effect for some time, the SWM regulations were started in 2013 and DEQ is required by the regulations to develop an expanded training and certification program.

The following graphic illustrates the prerequisite courses needed for each certification through the traditional training and certification curriculum.

Erosion and Sediment Control (ESC) Exam Eligibility Training					
Table 1-1					
Program Administrator	=	ESC 2-day Basic			
Inspector	=	ESC 2-day Basic	+	ESC 1-day Inspector	
Plan Reviewer	=	ESC 2-day Basic	+	ESC 2-day Plan Reviewer	
Combined Administrator	=	ESC 2-day Basic	+	ESC 1-day Inspector	+ ESC 2-day Plan Reviewer

Stormwater Water Management (SWM) Exam Eligibility Training					
Table 1 - 2					
Program Administrator	=	SWM 2-day Basic			
Inspector	=	SWM 2-day Basic	+	SWM 1-day Inspector	
Plan Reviewer	=	SWM 2-day Basic	+	SWM 2-day Plan Reviewer	
Combined Administrator	=	SWM 2-day Basic	+	SWM 1-day Inspector	+ SWM 2-day Plan Reviewer

### **On-The-Job Experience**

The other path for obtaining a certificate of competence is through on-the-job work experience in one of the classifications list in Table 1-1 and 1-2. If an individual has accumulated a minimum of 800 hours of on-the-job experience (verified through the application) they may be eligible to take the exam without attending training courses.

### **Dual Certificate**

Individuals who perform both VESCP and VSMP duties may obtain a Dual Certificate of Competence by surrendering both valid certificates to the Department and paying the required administrative fee. For instance, a person who holds a valid ESC Inspector Certificate and obtains a SWM Inspector Certificate may surrender both certificates and obtain a Dual Inspector Certificate.

The dual certificate will [expire three years from the latest date of either certificate](#) being surrendered.

<b>Dual Certificates of Competence</b>				
Table 1-3				
ESC Program Administrator	+	SWM Program Administrator	=	<b>Dual Program Administrator</b>
ESC Inspector	+	SWM Inspector	=	<b>Dual Inspector</b>
ESC Plan Reviewer	+	SWM Plan Reviewer	=	<b>Dual Plan Reviewer</b>
ESC Combined Administrator	+	SWM Combined Administrator	=	<b>Dual Combined Administrator</b>

The ESCL specifies that certain Licensed Professionals are automatically certified as ESC Plan Reviewers. Persons certified as Plan Reviewer include Professional Engineers (PE-s), Licensed Architects (LA-s), Licensed Landscape Architects (LLA-s), Licensed Land Surveyors (LLS-s), and Professional Soil Scientists (PSS-s). However, they must be certified to conduct ESC inspections or perform as an ESC Program Administrator. In the area of SWM, those professionals are [not](#) automatically certified and must obtain a certificate of competence if they are performing the duties of a VSMP Program Administrator, Inspector or Plan Reviewer (see section 9VAC25-850-50 of the Regulations for further details on who

meets these requirements). Re-certification for those individuals is different and will be discussed below.

### **Exam**

The exams are open book. You will be notified about what materials you are allowed to bring as reference material to take the exam. Typically the DEQ Handbooks along with course participant guides are used. Materials must be in a bound (3-ring) binder. No loose papers or study materials are allowed.

You will be notified of your exam results and if successful, you will receive your certificate via mail. You must attain a minimum score of **70%** in order to pass the exam. For exams that contain multiple parts (i.e., the Combined Administrator exam), you must attain a minimum score of **70% on each part**. If you fail the exam, you will be eligible to take it again for a period up to one year from the last class without submitting an additional request or application. Additional exams are **not free**.

### **Certificates and re-certifying**

All certificates of competence are valid for **three years**. In order to maintain your certificate of competence, you must re-certify every three years. There several ways in which to re-certify:

1. Re-take the exam before the expiration date on your current certificate;
2. Attend the DEQ training courses required for your individual certificate; or
3. Complete the required amount of contact or CEU hours

Once you have completed either items 2 or 3 above, you may apply for re-certification and pay the appropriate fee.

### **Important!**

You must re-certify **before** the expiration of your certificate in order to keep it valid. **If your certificate expires, you cannot re-certify**. You must take another certification exam.

Individual work experience may qualify you to take the exam however, you must re-apply to take the exam or you may be required to attend the training again and certify through that path depending on your individual situation. All re-certification of classifications must

pay the appropriate fee. You may re-certify during the last 12 months of your valid certificate without losing time on the valid certificate. The three years will be added to the expiration of that valid certificate.

### **Provisionally Certified**

Once you are enrolled in the DEQ training program, you are “provisionally” certified. You have one year to complete the certification process (attend the required training and pass the examination). See 9VAC25-850-50 for details and applicability.

### **RLD**

The other certificate issued by the Department is the Responsible Land Disturber (RLD). This certificate is intended for individuals who are responsible for carrying out the land-disturbing activity (LDA) in accordance with the approved ESC plan. The RLD may be the owner, applicant, permittee, designer, superintendent, project manager, contractor, or any other project or development team member. The RLD must be designated on the ESC plan or permit as a prerequisite for engaging in land disturbance.

For further questions regarding training and certification, please visit the FAQ link on the DEQ Training & Certification page:

[www.deq.virginia.gov/ConnectWithDEQ/TrainingCertification.aspx](http://www.deq.virginia.gov/ConnectWithDEQ/TrainingCertification.aspx).

## 1c. Technical Assistance / 2013 Stormwater Management Handbook

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The ESCL also requires DEQ to provide technical assistance to VESCPs. This is done by the 1992 “Green Book”, or the Virginia Erosion and Sediment Control Handbook.

Virginia Erosion and Sediment Control Handbook	
Table 1-4	
<b>Chapter 1</b>	Introduction
<b>Chapter 2</b> Appendix	Erosion and Sediment Control Principles, Practices and Cost Wall Chart (Unified Coding System)
<b>Chapter 3</b>	State Minimum Standards and Specifications
<b>Chapter 4</b>	Stormwater Runoff
<b>Chapter 5</b>	Engineering Calculations
<b>Chapter 6</b> Appendices	Preparing an Erosion and Sediment Control Plan 6-A: Soils Information 6-B: Soil Survey Information 6-C: List of Soil Types
<b>Chapter 7</b> Appendices	Administrative Guidelines 7-A: Sample Administrative Forms 7-B: Enforcement Flow Chart 7-C: Directory
<b>Chapter 8</b>	Virginia Erosion and Sediment Control Law and Regulations
<b>Appendix</b>	Glossary